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October 2, 1992

TO: Minerals File

FROM: Holland Shepherd, Senior Reclamation Specialist HLS

SUBJECT: Meeting to Discuss Repository at the Small Fry Mine, M/037/22, San Juan County, Utah

Date of Meeting: September 1, 1992
Time of Meeting: 10:00 a.m. to 12:00 noon
Participants: Dave Shoemaker, Gary Morris, Reno Clark, Dr. McDonald E. Wrenn (consultant), UNOCAL/Molycorp; John Whitehead, DWQ; John Hultquist, DRC; Holland Shepherd, DOGM

Purpose of Meeting: To discuss the regulatory requirements involved in creating a repository for vanadium mill wastes, at the Small Fry Mine.

UNOCAL is proposing to relocate vanadium mill wastes from a site in Dry Valley to the Small Fry Mine, 9 miles north of the mill site. Both sites are located in the Lisbon Valley Industrial area. The mill site is located in T30S, R24E, Section 35.

Our initial discussion involved a summary and presentation by Mr. Morris concerning the groundwater characteristics associated with the Small Fry. UNOCAL provided us with a map (see file), which shows the various elevations of excavated portions of the Small Fry. The lowest portion of the mine, which I visited during my August 31, 1992 visit to the site, is at approximately the 6600 foot elevation. Homestake sent a letter to UNOCAL indicating that their deepest portion of the La Sal # 2 mine, located 1200 feet southeast of the Small Fry was at the 6123 foot elevation and had encountered a maximum of 1-2 gallons/minute at the bottom of the mine. The bottom of the LaSal #2 is located in the Cutler formation. A regional study of the area associated with the mine, *Bedrock Aquifers of Eastern San Juan County, Utah*, published in 1986, indicates that the average depth of the potentiometric surface of the N aquifer, in the area of the

mine to be @ 6000 feet. It is felt that the bottom of the mine may be several hundred feet above any significant groundwater zones. The bottom of the Small Fry is estimated to be at @ the 6600 foot elevation.

Mr. Morris produced a 1956 geological report of the Lisbon area, showing geological formations, etc. The information indicates that the mine is located in the bottom portion of the Chinle formation (the Mossback) just above the Cutler. The Cutler does contain significant groundwater, in places, whereas, the Chinle does not.

Mr. Hultquist, of the Division of Radiation Control (DRC), indicated that his agency had three areas of concern: 1) that verification results from grid areas demonstrate the mill area has been cleaned to the acceptable standard, 5 pCi/gram + background radiation. Background radiation has been established at 2 pCi/gram; 2) transportation of material from the mill site to the mine site will be in closed or covered transport vehicles; and 3) once all material has been moved, UNOCAL will notify the DRC and allow the DRC to perform a final verification survey of the Dry Valley Site.

Also, DRC was concerned about the methodology used in evaluating the radioactive nature of the material. The material was evaluated onsite using a grid and layer sampling approach. The material was analyzed at EPA certified laboratories, chosen by the operator (Hazen Research, Inc. and Energy Labs, Inc.). Measured values of radioactive material ranged from 1.1 to 318.4 pCi/gm Uranium, and 0.8 to 122.0 pCi/gm Radium 226. This material has been designated as naturally occurring radioactive material (NORM), by the Division of Radiation Control (see attached letter). NORM material falls into a category that does not require licensing under NRC. It does not contain more than .05% U_3O_8, it is not a by product of uranium processing and it is not fissionable material.

Mr. Hultquist said his Division was in concurrance with these values and was interested in seeing the material removed to a safer location underground. Mr. Morris provided me with a copy of a letter, dated June 18, 1991, which states that the Division of Radiation Control agrees with defining this material as naturally occurring radioactive material (NORM) (see attached letter).

According to Mr. Morris the mill material contains @ .01% U_3O_8, while the native uranium ore within the mine contains from .01 to .40% U_3O_8. He maintains that the material to be placed in the mine is much less radioactive than that already existing in the mine.

Mr. Morris indicated that his company did not think there was a need for a groundwater discharge permit, based on the information available, and the nature of the material to be placed in the mine. Also, the material will be placed in such a fashion, that none of the lower passages in the mine will be used for disposal. This will act to further distance the material from impacting any groundwater that might infiltrate the bottom workings of the mine.

Mr. Whitehead, indicated that he would make recommendations to his supervisors, based on information discussed during this meeting and information to be provided by UNOCAL.

DWQ will look for a formal request by the operator, describing the information discussed above, regarding the proximity of groundwater and the likelihood of impacting it. The request will ask for an exemption from the groundwater permitting requirements for this project/site.

The operator indicated that performing the work in fall or winter would not be a problem. Mr. Hultquist was concerned that operating in the winter might result in placing wet material in the mine, thereby creating a problem leachate situation. Also, transporting the material would require covering and containing it properly. This information will be addressed further depending on the outcome of DWQ's decision. UNOCAL has indicated that if a groundwater permit is required, the project would prove to be economically unfeasible.

jb
cc: Gary Morris, UNOCAL
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John Hultquist, DRC
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